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SUBJECT: VIETNAM'S AMBITIOUS NUCLEAR POWER PLANS

Ref: A. HANOI 1352 B. HANOI 1252 C. HANOI 1267 D. HANOI 1048 E.
HANOI 966 F. HANOI 898 G. HANOI 610 H. 07 HANOI 1867

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¶1. (SBU) Summary: Vietnam has ambitious plans to develop its
civilian nuclear power sector. In the face of rapidly expanding
demand for power and few other domestic sources of energy, the
Government of Vietnam (GVN) wants to move quickly to construct the
nation's first nuclear power plants. Acknowledging its limited
capacity to build, operate, and regulate this industry, Vietnam will
rely upon foreign partners for substantial assistance. The United
States has developed close cooperation with the GVN to support
safety and security infrastructure, which will facilitate access to
the market for U.S. companies. However, competition will be stiff
as many other nuclear suppliers are targeting Vietnam. End
Summary.

¶2. (U) This cable responds to State 12743 and follows its format.

Vietnamese Plans for the Development
of Nuclear Power

¶3. (SBU) Vietnam currently does not have any nuclear power
facilities. However, the country has an ambitious plan for the
commercial nuclear sector. In 2006, the Prime Minister approved a
strategy for the development of the nuclear power for civilian
purposes (power and other applications) through 2020. Subsequently,
in July 2007, the GVN adopted a "Master Plan for Implementation of
the Long-term Strategy." Vietnam's National Assembly passed a
comprehensive Atomic Energy Law on June 3, 2008. Pursuant to the
master plan approved by the Prime Minister, Vietnam intends to
produce 10,000 megawatts from nuclear energy by 2030. Per the
Vietnam Agency for Radiation and Nuclear Safety (VARANS, formerly
VARANSAC), Vietnam hopes to generate 3.3 percent of its energy from
nuclear power by 2020 and 4.7 percent by 2025 (Note: Vietnam
Electricity (EVN), the state-owned electricity provider provides

somewhat more conservative estimates -- 1 percent of Vietnam's energy from nuclear power by 2020 and 6 percent by 2030).

¶4. (SBU) In several meetings with the Embassy, USG delegations, and other Embassy contacts, GVN officials have set forth proposed timelines for the development of nuclear power. However, given the many players within the GVN, the difficult and time consuming process to receive intra-GVN policy consensus, and the GVN's still-evolving understanding of the practical requirements of developing the nuclear power sector, the timeline described below needs to be seen as highly preliminary and likely to change. Though GVN officials initially informed USG delegations of their intention to construct a 2,000 MW nuclear power plant (NPP) near the coast at Phuoc Dinh (in rural, southern Ninh Thuan province), those officials subsequently have told Embassy contacts that the GVN now envisions a 4,000 MW NPP consisting of twin double 1,000 MW reactor units in Ninh Thuan province, which would be integrated by an exclusive line into a 500 kv grid, which would then be integrated into the national grid (ref F). (Note: per VARANS, exact power production figures could vary slightly depending upon negotiations between the state-owned national electricity company, EVN and contractors). The Phuoc Dinh site and the proposed site in Vinh Hai (also in Ninh Thuan province) for the second NPP are in rural areas far from population centers.

¶5. (SBU) EVN recently finalized a Pre-feasibility Report, which it will soon submit to the Prime Minister for approval. Following the Prime Minister's okay, EVN will present the study to the National Assembly in May 2009 for the final go ahead. The GVN expects the completion of a feasibility study, with technology preference, in 2009/10 and the submission(s) of the NPP license application(s) by 2011, followed by the development of the technology technical description. In 2012-2013, the GVN would receive bids for engineering, procurement, and construction (EPC) contract(s) with bid and vendor selection and nuclear design and construction

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approvals in 2013-14. Construction would begin around 2015, and the first of the possible four reactors would come online around 2020, with additional reactors entering service through 2022. MOST officials commented that since Vietnam lacked the experience necessary for the development of a nuclear power program, it would rely heavily on nuclear cooperation with advanced nuclear energy states.

Existing or Planned Nuclear Power Related Facilities, Such as Uranium Mining

¶6. (SBU) Vietnam does not have any existing nuclear power related facilities, though it continues to operate a nuclear research reactor in Dalat built by the United States for the Republic of Vietnam in the 1960s and modified by the Soviet Union in the 1970s. Currently, the United States is negotiating to finalize conversion of the facility from dependence on highly enriched uranium (HEU) to low enriched uranium (LEU). In 2007, the United States, Russia, and Vietnam completed the return of fresh HEU to Russia. We hope to return spent HEU to Russia in 2010.

¶7. (SBU) In the long-term, Vietnam is contemplating the creation of certain nuclear support sectors, but has not developed any concrete plans. EVN stated that Vietnam had some nuclear mining and milling capability, though it did not have the capacity to enrich uranium. According to VAEC, Vietnam only has low-content uranium ores. Though VAEC has been working on plans to mine these ores for many years, such plans are not close to finalization.

Underlying Motivations for Development of Nuclear Power

¶8. (SBU) The GVN has focused on the development of nuclear power to resolve anticipated power shortages and to deepen Vietnam's energy security. Vietnamese energy sector experts increasingly point to nuclear energy to supplement Vietnam's limited domestic energy generation capacity (ref F). The GVN's Energy Master Plan VI,

released in July 2007, predicts that demand for electricity will grow 20 percent annually through 2015, while the Ministry of Industry and Trade (MOIT) now predicts growth of 17 percent per year, reflecting the expected impacts of the global economic downturn. Vietnam will soon run out of new sources of hydropower and by 2011 expects to begin importing coal (ref H). Vietnam also plans to import electricity from planned Lao hydro-electric facilities. Substantial offshore natural gas reserves may be blocked by political maneuvering over control of the South China Sea. Several interlocutors explained that a recent review of energy production and demand figures led the GVN to upgrade the importance of nuclear in Vietnam's planned energy mix. Though not a significant factor in Vietnam's decision-making process, the lack of greenhouse gas emissions from nuclear power makes it a more attractive alternative to the continued expansion of domestic coal-fired power.

Anticipated GVN Role in the Civil Nuclear Sector Financing

¶9. (SBU) We do not believe that the GVN has made substantial headway in determining how to finance the development of the nuclear sector.

In meetings with the State Department Special Envoy for Nonproliferation, Ambassador Jackie Wolcott (ref D), Vietnamese officials acknowledged that they had not yet seriously considered this challenge and had assumed that financing could be secured via loans from the World Bank, the International Monetary Fund, or the Asian Development Bank, or via export credits. MOIT Vice Minister Do Huu Hao told a DOE delegation in August that while State-controlled EVN would serve as the sole investor in the first two nuclear reactors, Vietnam might open up subsequent facilities to foreign investment, possibly up to 100 percent (ref F). EVN, in turn, acknowledged possible financing problems and anticipated requesting construction bidders to identify sources of funding. EVN

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officials emphasized that all financing options remain on the table though they also mentioned the possibility of a Build, Operate and Transfer (BOT) arrangement. EVN noted that it could not rely on Official Development Assistance for the reactors, though it might be able to do so for other components.

Names and Titles of Key Nuclear Decision makers

¶10. (SBU) Given the high risk and reward calculus for the development of a civilian nuclear power sector, all nuclear agreements/projects must be approved by the Prime Minister. Prime Minister Nguyen Tan Dung played an active role in the decision to site the first nuclear power reactors in Ninh Tuan province. Additionally, large projects such as nuclear power plants, which are related to energy security, must also receive final approval from the National Assembly. Within the GVN, Deputy Prime Minister Hoang Trung Hai has responsibility for all energy issues. (Note: In Vietnam's consensus-driven decision making process, Hai must coordinate input from several ministries and does not have the power to force solutions or timetables on other participants). Hai met with DOE and USTDA to discuss nuclear power and visited a nuclear power plant during his November 2008 visit to the United States.

¶11. (SBU) The Ministry of Industry and Trade (MOIT) has responsibility for developing the Vietnamese power sector. Within MOIT, Vice Minister Do Huu Hao supervises nuclear power issues. On a practical level, the MOIT Department of Energy, headed by Ta Van Huong, focuses on nuclear energy. State-owned EVN will develop Vietnam's first nuclear power plants. Phan Minh Tuan, Head of the Nuclear Power and Renewable Energy Projects Pre-investment Board, supervises EVN's nuclear strategy discussions.

¶12. (SBU) VAEC and VARANS, together with their parent Ministry, MOST, play key roles in developing the necessary infrastructure for the planned civilian nuclear power sector. MOST exercises oversight of Vietnam's nuclear program and serves as the designated regulator. MOST Minister Hoang Van Phong does not focus on nuclear energy. Vice Minister Le Dinh Tien's portfolio contains nuclear energy

(Note: Tien will be in Washington from January 2 to 7 and would like to meet with DOE and State, ref A). MOST Vice-Minister Tran Quoc Thanh covers general U.S.-Vietnam science and technology cooperation and also plays a role in MOST nuclear policy considerations. The VAEC, led by Chairman Vuong Huu Tan and with a staff of 600, an administrative and scientific agency under MOST, advises MOST on nuclear policy (and continues to support EVN in the development of the pre-feasibility study for the first planned nuclear reactors) and operates the Dalat nuclear research reactor. Dr. Ngo Dang Nhan, serves at the director of VARANS, Vietnam's designated nuclear regulatory body.

GVN Nuclear Regulatory Authority

¶13. (SBU) The Vietnamese nuclear regulatory agency, VARANS, was established in 2003 under MOST and assists the MOST Minister in the state management of radiation and nuclear safety and control. VARANS has grown rapidly, from less than 10 employees in 2004 to over 50 in 2008. In addition to its recent MOU with the U.S. Nuclear Regulatory Commission, VARANS has signed a technical cooperation MOU with the Korean nuclear regulatory authority and also has close ties with Australian nuclear regulators. Its main roles include developing policies, programs, legal documents, regulations and standards on radiation and nuclear safety, licensing, regulatory inspections, environmental monitoring, emergency response, and safety assessment. VARANS played a key role in the drafting of Vietnam's new Atomic Energy Law. At the same time, however, nuclear power's high profile and importance to energy security and economic development ensure that the Prime Minister's office will track, and perhaps direct, the progress of nuclear development. In fact, despite VARANS's rapid growth and human resource and training upgrades, EVN noted its belief that a special task force headed by a deputy Prime Minister would supervise preparation for the nuclear sector, including the creation of the

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safety and security infrastructure.

Vietnamese Nuclear Liability Provisions

¶14. (SBU) Vietnam has not yet joined the Convention on Supplementary Compensation for Nuclear Damage (CSC) and does not have a separate law on domestic nuclear liability. According to VARANS, Vietnam is not a party to any international liability regime and is not yet considering joining any. The new Law on Atomic Energy (AEL), passed by the National Assembly in June 2008 generally covers liability issues. VARANS is drafting decrees to guide implementation of the law which will be submitted to the GVN in early 2009. In particular, the AEL stipulates that radiation damage compensation levels shall comply with Vietnam's Civil Law and that nuclear damage compensation levels shall be determined as agreed between concerned parties. Where the parties cannot come to an agreement, compensation levels for humans shall be determined in accordance with Civil Law, while compensation level for environment shall be specified in accordance with Vietnam's Environmental Protection Law. Total compensation for damage resulted from each nuclear incident shall not exceed 150 million Special Drawing Rights as determined by the International Monetary Fund.

Nuclear-related Manufacturing Base

¶15. (U) Vietnam's manufacturing base is not involved in nuclear-related products or services and has no plans to do so in the short to medium term. The GVN would like to develop some of these sectors over the next several decades, but acknowledges it will take many years to develop the technical and human capacity to do so.

Nuclear Workforce

¶16. (SBU) Currently, the GVN does not have a nuclear-trained workforce, nor does it have a significant engineering, technician

and construction base that could be readily converted into a nuclear workforce. Both EVN and GVN nuclear research and regulatory authorities contain engineers who received nuclear training in the Soviet Union and former Eastern Bloc. However, this relatively small cadre has had limited exposure to modern nuclear technologies and likely will have retired prior to the development of Vietnam's civilian nuclear power sector. EVN acknowledges its limited human resources capacity and anticipates contracting with foreign technicians to operate Vietnam's first nuclear plants while training EVN staff - a process which EVN believes will take 15-30 years. EVN has also sent engineers for training to South Korea, France and Japan.

¶17. (SBU) Domestically, the Ministry of Education and Training (MOET) is developing an HR training and development plan for the nuclear sector, which it plans to finalize for intra-GVN review in the next few months. The plan calls for Vietnam to send several core experts to countries with developed nuclear power sector for training and, in the long-term, to develop domestic capacity for such training. MOET also is formulating a project to develop nuclear power-related curricula in several universities by sometime in 2009. MOST is considering a proposal to establish a center to specialize in nuclear training, though the initiative remains rather unclearly defined. VARANS has sought training for its personnel from the U.S. DOE and NRC, along with other partners, such as Japan.

Nuclear-related Tenders

¶18. (SBU) Once the National Assembly approves the VAEC/EVN pre-feasibility study for the initial nuclear reactor construction, EVN will coordinate the tender process to draft a full feasibility study, which is expected to be tendered right after the pre-feasibility study has been approved by the National Assembly -

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no earlier than the third quarter of 2009. Subsequently, according to EVN, it will consider all options for nuclear vendors and financing and the GVN would decide upon what type of contractor and technology that it would use. (Note: VARANS stated that the first plant would rely upon light water technology). By March or April 2010, EVN would tender the engineering, procurement, and construction (EPC) contract, with the bid listed in the Vietnam Economic Times and on the Ministry of Planning and Investment website. GVN contacts have reported interest from Westinghouse-Toshiba and General Electric-Hitachi (ref G).

Opportunities for U.S. Industry

¶19. (SBU) As Vietnam develops civilian nuclear power, U.S. industry will have opportunities to participate in all facets of the nuclear sector. Initially, U.S. firms will be able to bid on feasibility and consulting services. Over time, we expect to see opportunities for plant construction management, reactor sales, fuel cycle service provisions, plant operations, management, and logistics.

Primary Companies (Domestic and Foreign) Involved in Civil Nuclear Sector

¶20. (U) The GVN has designated state-owned EVN as the lead for the development of Vietnam's first NPP. Though Vietnam has few companies interested in other aspects of the nuclear sector, many foreign companies and governments have expressed interest in participation, though none have yet entered the market.

Foreign Competitors

¶21. (U) Several other nuclear suppliers have shown interest in engaging with Vietnam. According to VAEC, Vietnam has signed five cooperation agreements on atomic energy use for peaceful purposes with Argentina, India, South Korea, China and Russia. Vietnam has also signed an MOU on nuclear power cooperation with France. Japan,

China, South Korea, Russia and France have indicated interest in commercial nuclear opportunities with French and Russian official visits to Vietnam in 2008 promoting their nuclear sectors and scheduled visits to those countries from senior MOIT officials. France, Russia, China, South Korea and Japan participated in a May 2008 nuclear power exhibition sponsored by VAEC and EVN (Note: France, Japan and South Korea had the largest commercial delegations. No U.S.-affiliated companies attended).

¶22. (U) Besides the United States, France and Japan have developed the most extensive ties to GVN nuclear developers and regulators. French-Vietnamese nuclear cooperation dates to the 1990s and builds from French support for the Vietnamese electricity industry (including the recent construction of the Phu My 2-2 BOT Gas Electric Plant). At the May 2008 VAEC/EVN exhibition, French exhibitors noted that the Government of France had requested the French Committee on Atomic Energy (CEA) to create the French International Nuclear Agency to assist nations, such as Vietnam, hoping to build their first nuclear power plant. France has also assisted Vietnam through assessments of training needs, training, guidance in drafting legal documents in the nuclear sector, organizing technical seminars and public education. In mid-2008, EVN and Electricite de France (EDF) held a public seminar on nuclear power at the site of the proposed first Vietnamese NPPs in Ninh Thuan province.

¶23. (U) Japan and Vietnam have cooperated on atomic energy since 1990, with a focus on the nuclear power sector beginning in 1997. Since 2000, several high-ranking GVN delegations have visited Japanese nuclear power plants and attended nuclear power seminars. From 2002-2004, Japan assisted Vietnam to develop the pre-feasibility study for the first nuclear power plants. Since 2005, Japan has trained EVN nuclear power technical officers. In April 2006, the two countries began a cooperation program for the peaceful use of atomic energy and nuclear power plant safety.

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Political Considerations

¶24. (SBU) If past history is a guide, Vietnam's decisions on nuclear technology and suppliers will be influenced as much by political considerations as by commercial concerns. We expect Vietnam to try to balance competing interests and, if possible, to split the difference. Earlier this year, Vietnam Airlines split a major long-range aircraft order between Boeing and Airbus, despite advice that its fleet only needed one such model. VARANS Chairman Ngo Dang Nhan stated his desire for one common design for the first several units to promote better nuclear safety, but acknowledged that political calculations would impact design decisions. More likely, Vietnam will consider choosing different designs for its first nuclear reactors, allowing companies from more than one key ally to participate in the process. Vietnam has relied upon several partners to support the development of its nuclear power sector, particularly the United States, but also France and Japan, and will do what it can to avoid alienating any of them. U.S. support, evidenced by several existing MOUs and numerous visits to Vietnam by U.S. technical experts, has well positioned the United States to participate in the development of the Vietnamese nuclear sector.

MICHALAK